

**DEVELOPMENT THROUGH INNOVATION -  
A JAMAICAN MODEL: "Wi Lickle, But Wi Talawah"**

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## 1. The Imperatives of a New Era

The Jamaican economy now faces powerful imperatives derived from new conditions and ongoing changes in the international arena. The walls of protection and non-reciprocal preferences under which the economy has operated for many years are crumbling. The old pattern of specialization based on export of primary products and low-wage labour can no longer be sustained. It is now necessary to look to new patterns of production and new modes of organization to provide the momentum for future growth.

This much should be clear from the messages being brought home to us daily from many quarters, concerning the implications of NAFTA, the new rules of WTO, restructuring of economic relations with Europe, broad trends in the structure of world industry and technology, and changing patterns of global competition.

It is also clear that these imperatives call for a creative and concerted response in terms of rethinking existing economic policies and strategies at different levels (macroeconomic, sectoral, and firm-level, public sector and private), restructuring and repositioning the economy to cope with the new realities, redirecting the pattern of production and investment along new paths and, in general, adoption of a new model for sustaining future development of the economy as the new era unfolds.

## 2. A New Approach to Development

The recently instituted *National Industrial Policy* offers a framework for such a new approach and specific set of policies and programs to deal with this situation, and indicates certain implementation procedures to be adopted, over the short-, medium-, and long-term planning horizon.

Consistent with this approach, this paper seeks to identify *some key elements of a development path for the Jamaican economy that leads to a more diversified and balanced pattern of production and specialization*. It is also intended to make clear that there exists the potential for *a uniquely Jamaican model* that is grounded in the realities of our own experience, natural resources, cultural heritage, and human capabilities, while borrowing what is relevant and useful from the lessons and models of experience in other countries and contexts.

*The essential ingredient of the model is the emphasis on innovation in products and production processes.* The concrete and specific meaning of this conception in the Jamaican context is spelled out. In particular, it is not only a matter of technology, but also of management, organization, and exercise of human skills and creativity, hence the quality of human resources. There is a crucial role in it for our national arts and culture. It involves creative appropriation and well-managed use of our natural resources. It is founded on initiatives at the firm-level and on collective organization among firms. Because the economy is crucially dependent on trade and on export growth, it is necessarily based on creative engagement with the international economy. The state plays a key role in it as an instrument for coordination and for setting the requisite parameters of the process.

*There exists already in Jamaica much concrete evidence of practical examples of success in pursuing this line of development.* This Conference vividly presents some of them in the panel discussions and in the displays. There is need now for more detailed study of these cases, for learning from their experiences, and for fashioning and fine-tuning the correct policies that will nurture and build further successes throughout the whole economic structure.

### 3. Development through Innovation

The overall conception of the process of development through innovation applicable to the Jamaican economy is presented schematically in Figure 1.<sup>1</sup> In particular, the process has the following characteristic features.

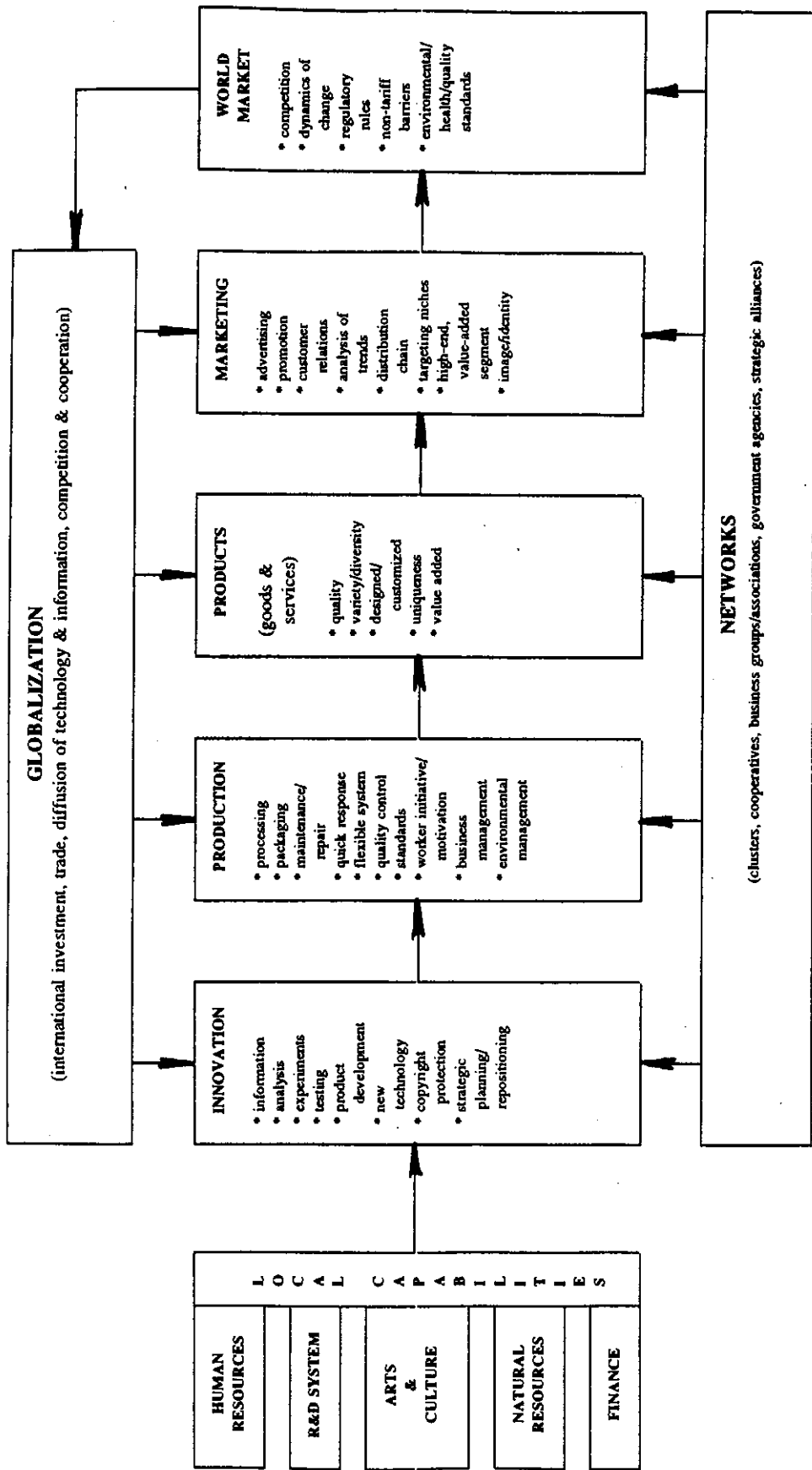
- \* It is a linked chain of processes, involving a dynamic sequence from innovation, to production, to marketing.
- \* It is anchored in local (national) capabilities and initiatives.
- \* It is directed towards the world market.
- \* It is organized within cooperative networks among individuals, firms and agencies.
- \* It is influenced by feedback from the process of globalization in the world economy.

Each component of the process has its own specific features and activities, as indicated in the diagram, which define its scope and relevance as an integral part of the process.

*Innovation is the key point in the process.* It involves the active, systematic, and creative combination of the set of five elements constituting local (national) capabilities, so as to set in motion the dynamic sequence leading to products that can win a place in the world market.

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<sup>1</sup> This conception and its representation in Figure 1 are developed in further detail in my paper: "Innovation as the Key to Development," July 1996.



**Figure 1. DEVELOPMENT THROUGH INNOVATION**  
(Source: D. J. Harris, "Innovation as the Key to Development," July, 1996; copyright, 1996)

Insofar as the process is directed towards the world market, the decisions and actions taken at all points in the sequence leading to the world market are disciplined and guided by the imperative of surviving and expanding in that market.<sup>2</sup> Beyond that influence, there are other multi-faceted feedback effects, derived from active participation in the international economy and the ongoing globalization process (as specified in the diagram), which impact directly on the different points in the sequence.

*Networks form an integral part of the process, as a mechanism for facilitating action and movement through the sequence.* They are the organizational forms, public and private, which link together individual decision-making units (individuals, business firms, government agencies) so as to gain the advantages of large size, cooperation, collective action, and specialization according to core competencies and to overcome the disadvantages of small size that would otherwise inhibit action and movement in the sequence.

#### 4. The Strategy of Innovation

*The innovation process operates, in the first instance, within existing lines of production of both goods and services and builds on them to achieve further growth.*

Starting from inherited initial conditions in particular products and processes and acquired learning, an effort is made, through highly focused search-activities (using information, analysis, experiments, testing, etc), to carve out trajectories that lead to new products and processes and new learning that, in turn, provide the basis for further development. In this evolutionary manner is created a continuing expansion, deepening and diversification of the productive structure of the economy.

In keeping with this approach, *there are specific strategies of innovation that are relevant to the Jamaican economy under present conditions.* These are the following:

- (1) exploiting possibilities for joint production within existing processes (e.g. cogenerated power from sugar mills or alumina plants);
- (2) building backward linkages into local sources of raw materials and forward linkages into higher stages of processing;
- (3) moving into up-scale, high-value-added market-segments through improving product quality, diversity, image, and distinctiveness ("product differentiation");

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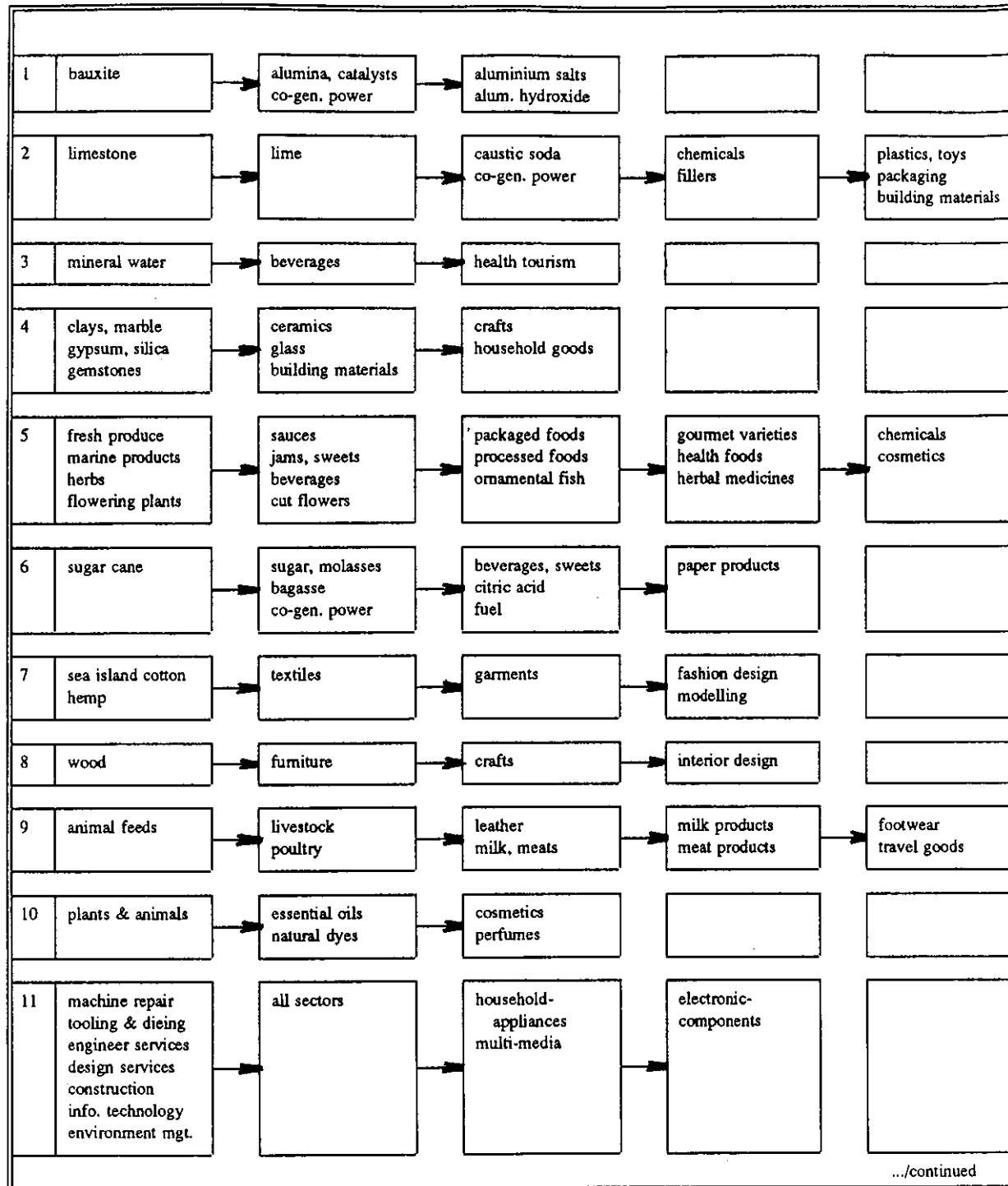
<sup>2</sup> It must be emphasized here that, in the context of a liberalized economy, the local market is an integral part of the world market. Hence, a strategy of import substitution is subject to the same discipline as one of export growth.

- (4) technical and organizational improvements in production ("process innovation") that yield cost reductions, remedies for plant and animal diseases, and satisfy quality standards, environmental and health requirements;
- (5) articulation and deepening of the structure of professional and technical services to meet domestic and regional demand and, thereby, create a wider platform for diversified export-growth in the general area of services.

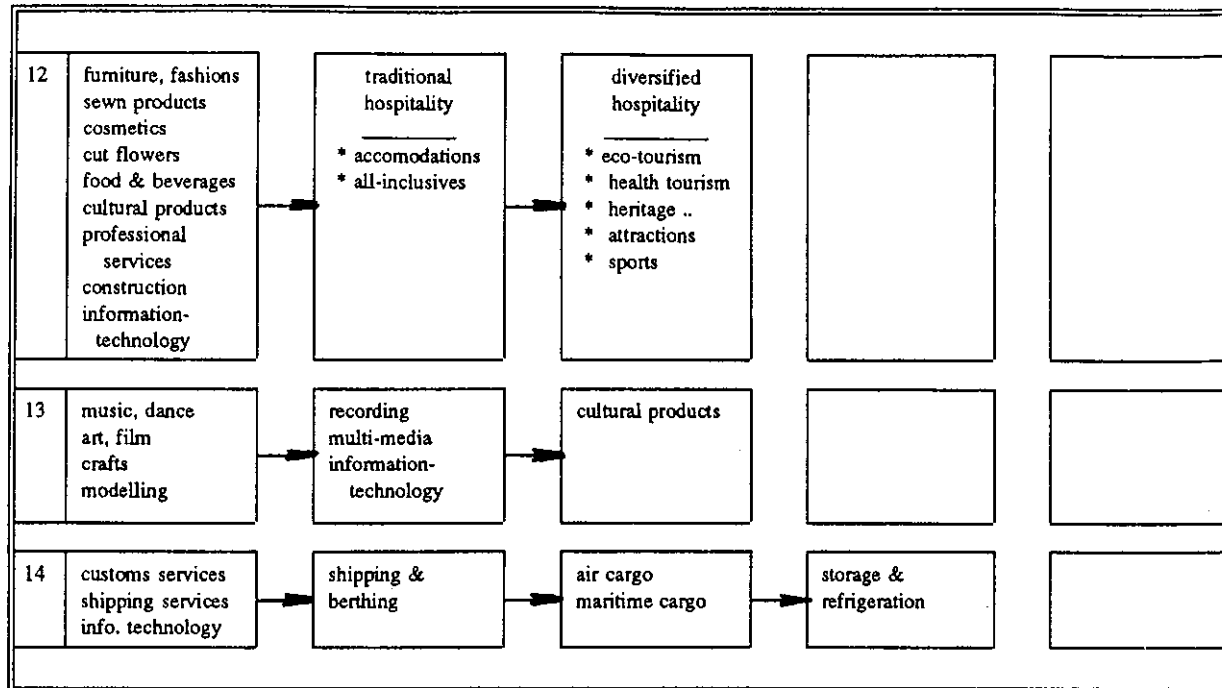
Correspondingly, there are particular *trajectories of innovation* at the level of specific products and sectors in which one or more of these strategies actually or potentially apply. Examples of these, fourteen altogether, are listed in Table 1. Further analysis would reveal more. Analysis of the trajectories included in this list brings out the following important features.

- (1) There exists currently a considerable scope for innovation in the Jamaican economy across a wide range of existing industries, sectors, and product-groups.
- (2) The potential for innovation rests to a considerable extent on natural-resource-based activities. In particular, trajectories numbered 1 through 10 are all natural-resource-based in terms of mining or agriculture. The hospitality sector in #12 is also characterized by intensive use of natural resources.
- (3) The hospitality sector is a special case. It is the largest existing sector in terms of income, employment, and foreign-exchange earnings. It generates directly and indirectly large potential spillovers for product development in other sectors through backward and forward linkages. It also has wide scope and significant potential for its own trajectory of product development.
- (4) All sectors, in their continuing development through innovation, necessarily generate demand for a wide range of innovative services in the areas of machine repair, tooling and dieing, engineering, design, quality control, testing, construction, and information technology. These services, in turn, once they are articulated and consolidated on the basis of interdependence with domestic production, can provide a platform for direct export of services. They also make it possible to pursue a trajectory of forward-linked product development in light manufacture and to support other emerging and technically-demanding activities (trajectory # 11).
- (5) The trajectory of development of cultural products (#13) is at present, and has been for some time, one of the most dynamic in terms of innovation and growth in employment, income, and foreign-exchange earnings. It has a considerable potential for continued innovation and growth, with large spillovers for the rest of the economy.

Table 1. Trajectories of Innovation for the Jamaican Economy: Products and Linkages



**Table 1 (continued)**  
**Trajectories of Innovation for the Jamaican Economy: Products and Linkages**



(6) Insofar as some of the activities listed here are natural-resource-based and/or use production processes that are environmentally unfriendly or pose health hazards, there is a necessary link to development of innovative services in the areas of environmental management, testing, and control of standards.

(7) Within this wide range of trajectories and corresponding product groups, there is room for exploiting the synergies that arise from interdependence among them, for instance through their joint use of common services, skill mixes, and raw materials. *This synergistic interdependence is a basic factor that drives the process of innovation itself.*

(8) Cultural products, in addition to their own potential for growth, can form the core of such synergistic interdependence. This applies especially to the innovative *marketing* of a wide range of new and emerging product lines, by creating an image of distinctiveness, quality, and sophistication associated with national cultural identity.



(9) Information technology and telecommunications constitute basic linkage-sectors that can propel innovation in all sectors, while also undergoing their own trajectory of innovation to provide improvement in the quality and scope of services.

The upshot of this analysis is that these trajectories, taken together, provide a powerful base for continuing development of the Jamaican economy. They also yield *a balanced and interdependent strategy for development*, instead of a one-sided and linear approach. In truth, it follows that "wi lickle but wi talawah".

## 5. Comparing Other Models

This strategy of development constitutes *a distinctively Jamaican model*, because of the specific combination and integration of interdependent elements that it contains, as well as the unique set of national capabilities on which it rests.

There is an element in it that reflects the "Chilean model". This concerns specifically the significant role of trajectories built on natural-resource-oriented activities in mining and agriculture. But this is only one element of the respective models, which are otherwise very different in many respects.

There is another element in it that reflects the "third-Italy model", represented by the significance assigned to networks. This, too, is only one element of these two models, which are otherwise profoundly different.

It departs substantially from the "Singapore model" in many ways, but particularly so because that model is heavily weighted towards a trajectory of accelerated local development of information-technology production in conjunction with foreign multinationals. In contrast, the Jamaican model is realistically based, at the present stage, on a strategy of application of information technology to meet local demand in all sectors and building on this base a platform for innovation in software development.

It differs substantially also from the wider class of "Asian Model", in terms of the latter's emphasis on a trajectory of climbing the technological ladder in manufactured products starting from textiles, garments, footwear, and toys and moving up to automatic data-processing hardware, telecommunications equipment, and consumer electronics.

It is the complete opposite of the "Maquiladora"-type of Export-Processing-Zone model, because it derives its dynamic from synergistic interdependencies, including backward and forward linkages, among all sectors within the national economy.

## 6. The Requirements for Success

It is not difficult to identify specific and concrete trajectories associated with existing production activities in Jamaica that constitute opportunities for development through innovation. It is important to go on to consider what is required to bring into reality such opportunities and to create others as yet unknown.

Some of the linkages identified here already exist or are now on stream. Others remain to be created. As far as technical feasibility is concerned, in some cases the technology is already known. It is a matter of borrowing and adapting it to local conditions. In other cases new research must be done or is being done. There are also issues of economic viability that have to be resolved. In every case, there are obstacles and constraints that stand in the way and have to be removed in order to get the process going.

In general, the requirements for success center on the five elements identified in Figure 1 as the *national capabilities* which anchor the process. It is necessary to shore up these capabilities, to administer and manage them well, and to orient them towards making their full contribution to the process of development through innovation. Much has already been written and said about each of them. Space does not allow going into the details here.<sup>3</sup> For present purposes, the following observations will suffice to pose sharply some of the key issues as related specifically to the innovation process.

### (a) Human Resources

The quantity and quality of human resources depends in large part on education and training. The present situation is commonly recognized to be inadequate, in terms of both quantity and quality.

To get significant improvements in the current situation, the conditions of work and pay for the educators and supply of physical plant and equipment require attention and commitment of resources. But beyond that, it is essential to rethink the nature of the education and training institutions, the content of what is offered, the methods and techniques of educating and training, and the preparation of the graduates for the world of work in an innovative environment. The educators themselves need to be constantly updated in their own education.

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<sup>3</sup> Many of the relevant details are addressed by the *National Industrial Policy*, which presents specific policies and programs to deal with them.

Opportunities for learning-on-the-job, for instance, through apprenticeship and internship programs, need to be expanded. The workplace itself has to be reorganized to accommodate learning by workers and encourage their innovative initiatives.

### **(b) The R&D System**

Effective R&D is tied to search-strategies of trial and error, testing, analysis, and problem-solving, specific to particular products, product-groups, and production processes. It requires appropriate incentives and focusing devices to channel efforts in the directions that are relevant to local needs and capable of yielding workable results. It also requires proper professional training, an inquisitive mind, and a sense of adventure from doing difficult and disciplined work.

It is estimated that there exists currently forty-two agencies in the public sector directly engaged in some form of R&D. Using available data, I tried to construct a distribution of these agencies according to broad areas of specialization. See Table 2. It is evident that there is a concentration in the area of agriculture/agro-industry and in data-collecting, laboratory and testing facilities, but the system is thin in all other areas.

All units of this system need to be re-examined in terms of their rationale, organization, funding, and effectiveness, as well as possibilities for better integration and cooperation between them. There is no reliable count on the number and types of available personnel in the system, their areas of expertise, and the specific projects on which they work. This reflects a serious gap and a corresponding need for better personnel management, coordination and monitoring of their activities, and closer attention to performance incentives. There is need to upgrade the size and quality of the existing pool of experts and of the expertise in targeted areas of specialization. (e.g. materials sciences, plant genetics, food technology, alternative energy systems, etc.).

*The private sector has a crucial role to play in the area of R&D.* All available research in other countries indicates that firm-level initiatives and problem-solving efforts are strictly necessary for giving focus and definition to R&D and translating it into commercially viable products. At present, little is known, in terms of systematic information, about the quantity and quality of R&D efforts carried out in-house and through outside contracting by Jamaican firms. This reflects another serious gap and underlying weakness in the system.<sup>4</sup>

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<sup>4</sup> In a recent sample survey of Jamaica's exporters, I obtained new quantitative and qualitative data that provide useful insights into the nature of current R&D activity in such firms. See D. J. Harris, "Jamaica's Export Economy: Towards a Strategy of Export-Led Growth," June 1996.

**Table 2**  
**Numerical Profile of Public-Sector Organizations**  
**Involved in R&D and Testing in Jamaica**

Areas of Specialization	Number of Organizations
Agriculture/Agro-industry	16
Mining	1
Energy	1
Medicine	3
Natural Sciences	1
Biotechnology	1
Nuclear Science	1
Marine Science	1
General Science & Technology	1
Environment	3
Data Collecting, Laboratory & Testing Facilities	13
Total	42

*Source:* Constructed from information supplied by National Committee on Science and Technology, September 1996.

### (c) Arts and Culture

Dynamic and innovative as this element of the process continues to be in practice, it still remains underrated in some quarters, though it has proved its capacity to command a significant share of the international market.

Improved training facilities are needed to develop natural talents that exist in abundance throughout the society, and to create the mastery of specific technology increasingly required to support talent and creativity. Talent must be properly rewarded and the rewards protected by effective safeguards on property rights in artistic and cultural products ("intellectual property").

#### (d) Natural Resources

The country is blessed with an abundant supply of particular resources (e.g. bauxite, limestone, other minerals, coastline, rivers and streams, varieties of wood and other natural materials) that have yielded rewards for generations past and present. There is a pressing problem now of proper conservation and management of these resources for the benefit of both present and future generations.

Land is a scarce resource in a small island-economy. This sets limits for both agriculture and living space. But efficient use of existing land in Jamaica often comes into conflict with ownership rights and management practices, and this makes matters worse. There is much scope for improvement in this respect.

Exploration may lead to discovery of new resources, and this should be encouraged. But in the meantime, there remains a critical problem of *the cost of energy supply* because of paucity of hydro sources, lack of domestic sources of petroleum and natural gas, and the continuing damage from reckless deforestation for fuel and lumber. *The cost of energy represents a significant handicap for achieving international competitiveness in all product lines.* Alternative sources of energy are technically feasible and, increasingly, commercially viable. This should be a focal point for innovation.

#### (e) Finance

*Finance is a critical constraint for the innovative firm.* Small firms are in an especially tight position because of little collateral and lack of leverage with the banks. Hence, informal networks (friends, family, "partner") play an important role for them. In the regime of high interest rates that has prevailed in recent years, many firms have run into difficulty because of a heavy burden of debt and a tendency to prefer debt-finance over equity.

Macroeconomic adjustments now underway should bring lower interest rates and increased liquidity in the financial system over time. But even so, close attention must be given to the need for innovation in the financial system itself (financial institutions and capital market), so as to lengthen the term structure of credit and to deepen financing in the areas of venture capital, equity capital, risk-sharing schemes, and funding for small firms.<sup>5</sup>

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<sup>5</sup> This issue is examined further in D. J. Harris, "Finance, Investment, and Growth: Economic Policy for Caribbean Economies in the Next (Quarter) Century," in *Whither the Caribbean Region: Whither CDB in Its Support?*, K. Worrell & A. Gonzales, eds., Barbados: Caribbean Development Bank, 1996, 37-63.

The firms themselves need to restructure internally so as to be in a position to take better advantage of funding opportunities in both debt and equity, and to seize new opportunities from strategic alliances with other firms both local and foreign.

**(f) Management and Innovation**

There is an obvious need for better management at all points in the sequence from innovation to marketing. But it is important to recognize that *management by itself is not innovation*.

The services of managers are indispensable to the innovator when they are well done by competent managers. There are different levels and areas of specialization in management, and different skills are required for each. No single person can master all that is required in a complex business operation, and so small firms suffer a special handicap in this regard.

Where do the *competent managers* come from? Some come up through the ranks, if given the opportunity and the right incentives. The business schools all over the world are specialized to train managers to work for the innovators. The schools in Jamaica (imported and local) do the best they can. But they lack depth and breadth in certain areas, and resources to cope with the excess demand. Modern management systems required for functioning in the current competitive global environment entail special skills which the schools in Jamaica are not well equipped to provide. Such skills are abundantly available at the right price in the international labor market and in Jamaican communities abroad.

Where do the *innovators* come from? Accumulated research in other countries shows that they rarely come out of the business schools or, for that matter, out of the universities. Instead, *innovators come out of the woodwork in the most unexpected places, in both big and small firms, in all walks of life, and at all levels of the class structure*. What needs to be done to get more of them is to provide the appropriate environment and incentive structures, in business and in the broader society, to nurture them and allow them to flourish.

Here in Jamaica it is customary to say that the local business people (owners and managers) are not innovators. This blanket generalization misses the point. It is also based on a false conception of the process of innovation. The fact is that there are innovators among the business people, but they are few and far between. Some outstanding ones have always been around and a few new ones have appeared in recent years. This fact is neither surprising nor remarkable. In any random population of given size taken from any culture, race, or country, there will only be a few business innovators. They act as *leaders* in their particular sector of business. The rest follow as *imitators*. This is a basic characteristic of the process of innovation identified in all studies of the process going back to the nineteenth century.

The point is, then, to focus on creating the conditions that will allow innovative leaders to emerge and on providing the support services that will allow both leaders and followers to sustain a continuing flow of innovations throughout the economy. There is a need to examine in depth what those conditions are, as well as the inhibiting factors, in the Jamaican context, by studying carefully the actual experiences of both success and failure and drawing out the appropriate lessons for policy to promote innovation.

#### **(g) Role of the State**

*The state has an important and decisive role to play in this whole process.* This is, in part, for reasons that are now widely recognized by economists, namely that market failure and coordination problems are a pervasive feature of the innovation process in the areas of education and training, R&D, production, marketing, and finance.

As a minimum, the state has to get the legal and regulatory framework right, provide for education and training of the labor force, and attend to the requirements of physical infrastructure. Moreover, the state must undertake to deepen public awareness and receptivity to the importance of innovation and innovators. These are, however, only the background conditions.

*Beyond these conditions, the state has a role in fine-tuning the parameters directly relevant to the process so as to focus decisions and actions towards innovation.* Appropriate measures include fiscal incentives (taxes and subsidies), finance, technical and organizational support (R&D agencies, productivity centres, network brokering, marketing), and copyright protection, as well as adopting an aggressive strategic-bargaining approach in the management of trade policy.

### **7. Learning from Doing It**

Development through innovation is a gradual process. *Natura non facit saltum* (Alfred Marshall). It proceeds by incremental steps. It is possible to collapse the time of the transition from one stage of the process to another, as did some of the Asian countries in an earlier period with much different conditions in the world economy from those prevailing today. But, leapfrogging is a rare occurrence in history and is generally not possible for developing economies in the context of modern technology and current conditions of global competition. Typically, it is necessary to lay the groundwork for each stage and to take the intermediate steps that lead to the next stage, moving down the learning curve in this process. *Creative combination of inherited initial conditions and acquired learning is the key to getting started.*

*There are significant practical examples, from Jamaica's own experience, of success in doing it.* These are strikingly evident, for instance, in the following well-established cases:

- (1) the transition from raw bauxite mining to local production of alumina;
- (2) implementation of the "all-inclusive" concept as a market-segmentation strategy in the tourism industry;
- (3) the transition from mento to ska, to reggae, to dancehall (and what next?) in Jamaican music.

It is being done today, in the banana and sugar industries, after a century or more of stagnation in methods of production and marketing. It is being done on a grand scale in the transformation of Kingston Harbour as a world-class shipping and berthing facility, and in numerous small ways in other areas: chemicals, furniture, fashions, food processing, yams.

Boxes 1 and 2 describe two specific and instructive examples of what exactly is being done at the level of particular enterprises to further this process of development through innovation.

All of these examples provide ample evidence, and practical lessons to be learnt therefrom, of how it can be done in the specific context of Jamaica.

## 8. Conclusion

On the basis of the analysis presented here, it is possible to resolve the seemingly polar opposition and exclusivity that is sometimes drawn, in current policy discussions, between:

- a strategy of natural-resource-based development and one based on knowledge- and skill-intensive production,
- production of manufactures and a services-oriented economy,
- outward orientation (or so-called "foreign dependency") and focus on national roots in culture and natural resources,
- market-focused development and state-directed development.

*It follows from this analysis that, in fact, no such opposition or exclusivity makes sense in the Jamaican context.*

This is because, as shown here, development through innovation in the Jamaican economy is *the purposeful and focused search for strategic synergies and trajectories of innovation* from:

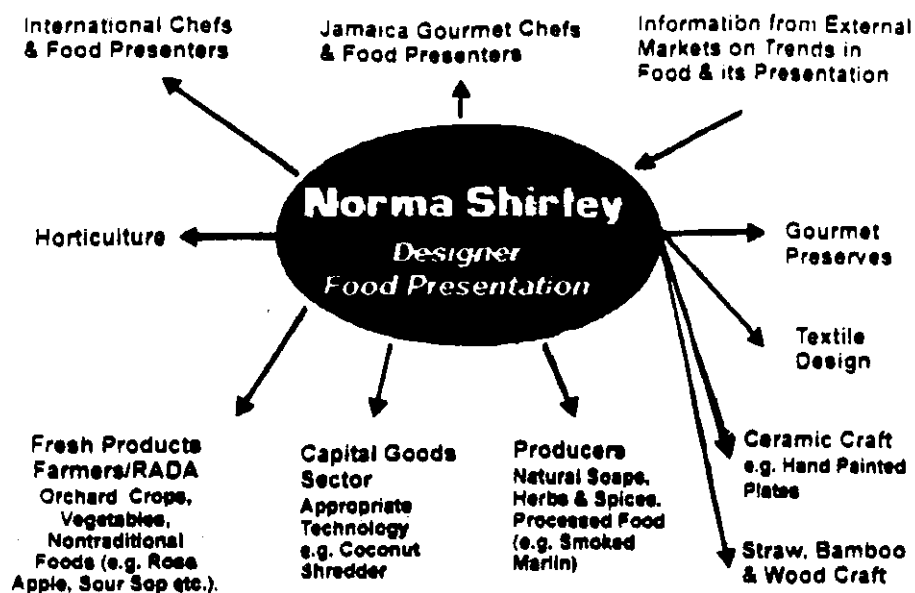


- \* creative combination of different elements of local natural- and human-resources and cultural forms;
- \* active engagement with the ongoing process of globalization in the world economy; and
- \* constructive cooperation and coordination among different agents, agencies, and institutions in the public and private sector.

At the heart of the whole process is our human creativity, learning, and the systematic application of scientific knowledge to the solution of practical problems.

*Actual experience in many different areas of the economy shows that it can be done and how it is done.* It is now necessary to build on this acquired learning so as to strengthen and deepen this process.

### Box 1. Linkages at the Firm-Level - Case 1

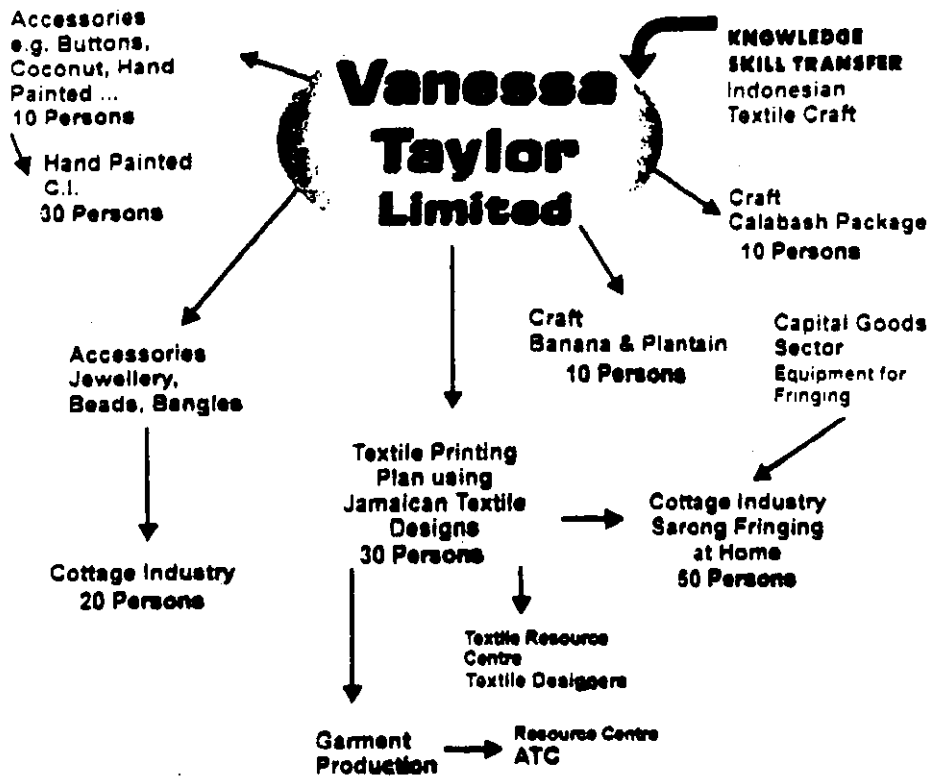


### PRODUCTIVITY CENTRE LINKS

- Assisting Norma's own Gourmet Line in terms of Packaging and labeling.
- Link into RADA regarding Raw Material Development
- Strengthen Craft Producers link with Food Trade and assist in Upgrading Product and Product presentation.
- Coordinate Designer Food Presentation.
- Strengthen link with Resource Centre (FTI) to Upgrade Product Quality and Quality Systems
- Coordinate Designer Food Presentation.

*Source:* Data, concept, and graphics constructed by Valerie Veira, Productivity Centre, JAMPRO

**Box 2. Linkages at the Firm-Level - Case 2**



**PRODUCTIVITY CENTRE LINK**

- Assisting in refining concept of network.
- Negotiate with HEART for HRD assistance.
- Linking Textile Designers and preparing both parties for the link.
- Develop Training for Designers in:
  - a) Marketing b) Negotiating a Contract c) Intellectual Property d) Costing.

Source: Data, concept, and graphics constructed by Valerie Veira, Productivity Centre, JAMPRO